

## History of Oregon's Additional Management Measures for Forestry and Documentation of Why They are Needed

### Significance of Forestry in Coastal Oregon, from Oregon's initial program submittal, 1993:

#### **Overview of Forestry Activities in Oregon's Coastal Zone**

- *Forestry is the principal land use in Oregon's coastal zone. Well over three-quarters of the private and state-owned public land in the Oregon coastal zone is reserved, through Oregon's Statewide Planning program, exclusively for commercial forestry use. Other lands... are also forested and may be subject to commercial timber harvesting. Federal lands in the coastal zone are virtually all USDA National Forests or forests managed by the USDI Bureau of Land Management.*
- *In addition to timber production, coastal forest lands provide fish and wildlife habitat, drinking water supplies, wilderness and non-wilderness recreation, biodiversity and numerous other commodity and non-commodity resources. The predominant forest use on private and state lands is the production of timber for commercial harvest.*

### NOAA-EPA Process for Determining Oregon's Need for Additional MMs for Forestry

In 1993 and 1994, NOAA and EPA performed threshold reviews for every state using a standardized approach to see which state laws and programs could be used to meet specific CZARA requirements and management measures. A review of the historical file of this review for Oregon, as well as reviews of early program submittals by Oregon, shows that EPA and NOAA paid close attention to the adequacy of Oregon's forest practices for protecting salmon habitat, with particular attention to temperature impacts from the effects of timber harvesting. We examined whether and how Oregon met the standard Forestry Management Measures, as well as whether there would still likely be water quality issues and whether they would be protective of beneficial uses even if all the standard Forestry Management Measures were met. This scrutiny was based on ODEQ's own findings (305b reports & 303d lists) and the scientific literature that existed at the time—specific to forestry practices within Oregon's Coast Range. Much of this scientific literature is referenced in Oregon's own *Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality* jointly released by ODEQ & ODOF in 2002. The recommendations and extensive supporting literature citations are available online at [www.oregon.gov/odf/privateforests/docs/allsav1031.pdf](http://www.oregon.gov/odf/privateforests/docs/allsav1031.pdf).

### Oregon CZARA Boundary Discussions, 1995-1996

CZARA calls for NOAA (in consultation with EPA) to "evaluate whether the State's coastal zone boundary extends inland to the extent necessary to control the land and water uses that have a significant impact on coastal waters of the State" and to make recommendations "to more effectively manage land and water uses to protect coastal waters."

The boundary considered the 1994 305(b) report and 1994 303(d) list from ODEQ. NOAA's Dec. 1995 Assessment Summary of the Oregon CZARA boundary noted the following:

- **Assessment Objectives** – *The primary purpose of these assessments is to evaluate existing data and information to determine if nonpoint source pollution generated by water or land-use*

*activities beyond the present CZM boundary are impacting or have the potential to impact the designated beneficial uses of coastal waters within the Umpqua and Rogue basins.*

- *Of the 390 miles of Umpqua stream and estuary segments monitored (i.e. with data) prior to 1987, **all** of the Umpqua segments were considered to be at least partly impaired due to nonpoint sources of pollution (ODEQ, 1988 Nonpoint Source Assessment). Similarly, for the Rogue, **92%** of the 266 miles of monitored segments indicated at least partial impairment due to nonpoint source pollution. Of the roughly 1600 miles of the Umpqua evaluated (i.e. through observation or best professional judgement) in the 1988 Nonpoint Source Assessment, more than **60%** were considered to be at least partially impaired due to nonpoint sources of pollution. Similarly for the Rogue, of the roughly 2000 miles evaluated more than 50% were considered to be at least partially impaired due to nonpoint source pollution.*
- *Salmonids are a legacy of Oregon's coastal ecosystem. Salmon populations are in serious jeopardy throughout coastal Oregon and one of the main and broadly recognized causes is non-point source pollution. Salmonid fishes, which are cold water fish, are among Oregon's most sensitive native species to elevated temperature. All salmonid species have significant rearing needs in the lower mainstems and estuaries (i.e. coastal waters).*
- *The 303(d) list for temperature based impairment in the Umpqua Basin is depicted on map 5 along with land use patterns and maximum temperature data from monitoring stations. Virtually the entire Umpqua mainstem across all three major hydrologic units is listed as impaired for temperature... The main causes of elevated temperatures are degraded riparian conditions, channel morphology changes due to erosion, sedimentation, and hydromodification, and also reduced summer flows.*
- *Riparian protection and restoration and the management and tailored restoration of hydromodified systems are critical elements of stabilizing and protecting water quality and respective beneficial uses within the Umpqua Basin. These issues are well within the scope and applicability of CZARA.*
- **Lack of Riparian Protection and Restoration** – *removing or reducing streamside cover has been documented to increase summer temperatures in Oregon streams by an average of 5 to 18 degrees F (Beschta et al., 1987 cited in ODEQ 6/95)*

## **Oregon studies that support NOAA-EPA's Additional Management Measures for Forestry conditions:**

### **Oregon's 2002 Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality** (jointly released by ODEQ & ODOF, Oct. 2002)

In April 1998, ODEQ & ODOF agreed to conduct a sufficiency analysis to outline the steps the Board of Forestry should take to improve water quality on forestland. The recommendations, which were released in 2002, addressed temperature, sediment, turbidity, aquatic habitat and diversity issues. The report "draws on available research and monitoring data relevant to current forest practices."

"Conclusions include the finding that there is some risk current protection may not be sufficient ...for some small and medium streams..." "The purpose of the recommendations included in this report is to ensure that the FPA goals and objectives, and thus water quality standards, are being met."

Specific recommendations from the 2002 Sufficiency Analysis include addressing...

- **Temperature/shading** (3 recommendations, including: "the Riparian Management Area (RMA) basal area retention standards should be revised... to ensure that RMAs are providing desirable amounts of large wood and shade over space and time" and "ensure that adequate shade is maintained or rapidly recovered for riparian areas along small perennial Type N streams...");
- **Landslides** ("Manage locations most prone to landslides... with techniques that minimize impacts to soil and water resources");
- **Roads** (five recommendations); and
- **Fish passage** (three recommendations).

Each recommendation is supported by specific scientific studies, most of them published in the 1990s. The sufficiency analysis, with recommendations, is available online at [www.oregon.gov/odf/privateforests/docs/allsav1031.pdf](http://www.oregon.gov/odf/privateforests/docs/allsav1031.pdf). These recommendations are nearly identical to the elements of NOAA-EPA's Additional Management Measures for Forestry.

### **Oregon's RipStream Studies Website:**

[www.oregon.gov/odf/privateforests/pages/monitoringripstream.aspx](http://www.oregon.gov/odf/privateforests/pages/monitoringripstream.aspx)

### **See also "Key messages about the ODF RipStream project" (2012):**

[www.oregon.gov/odf/board/rfpc/ripstreamproject.pdf](http://www.oregon.gov/odf/board/rfpc/ripstreamproject.pdf)

- *"Full project title - ODF Private Forests Riparian Function and Stream Temperature study (RipStream). RipStream started in 2002; project study area is 33 sites (18 private land, 15 State Forest) on medium and small Type F [fish-bearing] streams throughout the Coast Range."*
- *The objective of RipStream is to "evaluate the effectiveness of forest practices rules/strategies at protecting stream temperatures and promote riparian structure."*
- *RipStream is a "good example of collaborative research – Oregon Department of Forestry, private forest landowners, OSU, USFS, ODFW, DEQ, Oregon Headwaters Research Cooperative and EPA all working together for common benefit and expanded knowledge base."*
- *"This research uses effective science and the best available science."*
- *"Harvest activity led on average to a 0.7 C increase on private lands. Not all private sites increased in temperature, others increased by up to 2.5 C (4.5 F). State forest lands did not differ*

*from background temperature change. A change in temperature was associated with a change in shade. In turn, shade was related to riparian basal area and tree height."*

- *The Board of Forestry determined at the January 2012 meeting that there is monitoring or research evidence to document the degradation of resources maintained (i.e., that there is evidence that forest practices conducted under existing regulations do not insure forest operations meet the state water quality standard for protecting cold water on small and medium fish streams). The Board also directed the Department to begin the rule analysis process that could lead to revision of the riparian protection standards to increase the maintenance and promotion of shade on small and medium fish streams.*

#### **NOAA-EPA 1998 Findings documents for Oregon stated:**

Within two years, Oregon will identify and begin applying additional management measures for forestry. As discussed in section III, above, Oregon's program includes management measures for forestry in conformity with the (g) guidance. Best available information, however, indicates existing water quality impairments attributable to forestry in certain areas, and that the existing FPRs are inadequate to restore water quality and fully support designated beneficial uses. The State has the authority, under OAR 629-635-120, to develop and adopt watershed specific rules for forestry in watersheds that have been designated as water quality limited or for watersheds containing threatened or endangered aquatic species. This authority would be useful in developing appropriate additional management measures for forestry; however, the State has not indicated whether or how it intends to implement this process.

EPA and NOAA have identified areas where existing practices under the FPA and FPR should be strengthened to attain water quality standards and fully support beneficial uses. These areas include protection of medium, small, and non-fish bearing streams, including intermittent streams; protection of areas at high risk for landslides; the ability of forest practices to address cumulative impacts of forestry activities; road density and maintenance, particularly on so-called "legacy" roads; and the adequacy of stream buffers for application of certain chemicals.

Under existing State forest practices, medium, small, and non-fish bearing streams may be subject to loss of sediment retention capacity, increases in delivery of fine sediments, and increases in temperature due to loss of riparian vegetation. Another concern is provision of adequate long-term supplies of large woody debris in medium, small, and non-fish bearing streams, a shortage of which can result in decreased sediment storage in upstream tributaries, increased transport and deposition downstream, and overall adverse impacts to beneficial uses.

"Legacy forest roads" (that is, roads constructed and used prior to adoption of the FPA and not used and maintained since then) were not required to be treated and stabilized before closure. In some locations, this has resulted in significantly altered surface drainage, diversion of water from natural channels, and serious erosion or landslides. The ODF has proposed an expedited voluntary program to inventory and prioritize the upgrading of roads built prior to 1974 on industrial forest lands.

Regarding concerns with harvest activities in high risk landslide areas, evidence indicates that timber harvests on unstable, steep terrain can result in increases in landslide rates of approximately 200 to 400 percent. There are also indications that a relatively small proportion of potentially unstable ground in the Oregon Coast Range is responsible for the majority of landslides in Oregon.

Forest practice rules in effect at the time the Oregon 6217 program was submitted for approval did not require buffers for aerial application of herbicides or fertilizers for type N (non- fishbearing) streams. Such streams comprise significant portions of total stream length in the coastal zone. In January 1997, the ODF revised its rules governing application of chemicals. The new rules require a 60 foot buffer on type N streams for direct aerial application of fungicides and nonbiological insecticides except as approved by the State forester. The rules do not contain restrictions for aerial application of herbicides, which would appear to leave type N streams still at risk.

Cumulative effects of increased water temperature, sediment transport, road density, hydrological modification, and other factors can manifest themselves at a larger system scale and have adverse effects over an entire watershed or basin, rather than at a particular site or stream reach. The scope and pattern of these types of effects have recently become much more apparent through the use of watershed and landscape analysis. Cumulative effects are a concern not only within the forestry sector but across all land use or management measure categories within a watershed.